

Application Serial No: 09/876,372  
In reply to Office Action of 19 Jun 2003

Attorney Docket No. 80002

AMENDMENTS TO THE CLAIMS

1. (Withdrawn): A method for producing an object comprising the steps of:

providing a fluid medium having a top surface capable of solidification when subjected to a prescribed stimulation;

mixing a solid reinforcing material with the fluid medium;

providing an acoustic field at said fluid medium surface;

manipulating said solid reinforcing material using said acoustic field;

stimulating a region of said fluid medium surface, said stimulating resulting in solidification of said fluid medium into a lamina having said solid reinforcing material therein; and

moving said lamina downward, such that said fluid medium exists as a liquid above the top surface of the most recently formed lamina.

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2. (Withdrawn): The method of claim 1 wherein the solid reinforcing material is selected from a group consisting of a fibrous material, a nonfibrous material and a mixture of a fibrous material and a nonfibrous material.
3. (Withdrawn): The method of claim 1 further comprising the step of adding additional solid reinforcing material to said fluid medium.
4. (Withdrawn): The method of claim 1 further comprising the step of stirring said fluid medium.
5. (Withdrawn): The method of claim 1 further comprising the step of moving said stimulated region.
6. (Withdrawn): The method of claim 5 further comprising the step of coordinating the step of moving said stimulated region, the step of moving said lamina downward, and the step of manipulating said solid reinforcing material.
7. (Withdrawn): The method of claim 1 wherein said acoustic field is provided as a standing wave field.
8. (Withdrawn): The method of claim 1 wherein said acoustic field is provided as a crawling wave field.

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9. (Currently Amended): A system for producing an object comprising:

a fluid medium having a surface, said fluid medium capable of transforming its physical state in response to a stimulation;

a solid reinforcing material provided in said fluid medium;

a support means immersed within said fluid medium, and progressively moveable away from said fluid medium surface;

a translational means joined to said support means capable of moving said support means with respect to said fluid medium surface;

a stimulation means capable of providing the stimulation altering the physical state of said fluid medium at said fluid medium surface; and

at least two acoustic ~~transducers~~ transducer arrays having a plurality of transducer elements positioned in said fluid medium and capable of providing an acoustic

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field at said fluid medium surface for manipulating  
said reinforcing material; and

an acoustic controller joined to said at least two acoustic  
transducer arrays to control the transducer elements  
and the acoustic field by beamforming acoustic  
radiation from the transducer elements.

10. (Canceled).

11. (Currently Amended): The system of claim ~~10~~ 9 further  
comprising an object controller joined to said translational  
means and said stimulation means, said object controller being  
capable of positioning said stimulation means and said  
translational means for controlling positioning of the  
stimulation means with respect to the support means.

12. (Currently Amended): The A system of claim 11 for producing  
an object comprising:

a fluid medium having a surface, said fluid medium capable  
of transforming its physical state in response to a  
stimulation;

a solid reinforcing material provided in said fluid medium;

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a support means immersed within said fluid medium, and  
progressively moveable away from said fluid medium  
surface;

a translational means joined to said support means capable  
of moving said support means with respect to said  
fluid medium surface;

a stimulation means capable of providing the stimulation  
altering the physical state of said fluid medium at  
said fluid medium surface;

at least two acoustic transducers positioned in said fluid  
medium and capable of providing an acoustic field at  
said fluid medium surface for manipulating said  
reinforcing material;

an acoustic controller joined to said at least two acoustic  
transducers for controlling the provided acoustic  
field; and

an object controller joined to said translational means and  
said stimulation means, said object controller being  
capable of positioning said stimulation means and said

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translational means for controlling positioning of the  
stimulation means with respect to the support means;

wherein said object controller is joined to said acoustic  
controller for coordinating the position of the  
provided acoustic field with the portion of the fluid  
medium being subjected to said stimulation means.

13. (Currently Amended): The system of claim 12 further  
comprising a vat having a plurality of walls containing said  
fluid medium ~~therein~~ therein, said acoustic transducers being  
positioned on at least two of said walls.

14. (Original): The system of claim 9 wherein the solid  
reinforcing material is selected from a group consisting of a  
fibrous material, a nonfibrous material and a mixture of a  
fibrous material and a nonfibrous material.